NANDHA COLLEGE OF TECHNOLOGY

Department of
Computer Science and Engineering

VOLUME 11

TECHNICAL MAGAZINE

ACADAMIC YEAR 2023-2024

ABOUT DEPARTMENT

Volume:11

The department of CSE was started in the year 2008 and offers B.E degree programme. The department has various laboratories and well-qualified and experienced faculty. The department has signed the MoU with leading companies. Computer Science and Engineering is a worldwide accepted educational instrument designed to increase the effectiveness and efficiency of the educational system. Computers are mainly used to improve the learning system. Online learning and remote training are among new education forms.

With a right combination of theory, practical, projects (hands-on) and industrial training in the areas such as Data science, Artificial Intelligence and Machine Learning, Cloud essentials, Full stack development, this programme has well placed itself as a well-known preference for the students.

VISION

- To be a centre of excellence in the field of Computer Science with Global standards of Academic and Research for the need of Society and Industry.

MISSION

- To provide value based Computer Science education and produce innovative, competent and high quality Computer Engineers for the growing demand of Society and Industry.
- To facilitate the students for enhancing the technical skills to involve in research activities through lifelong learning.

PROGRAM OUTCOMES POs

Engineering Graduates will be able to:

PO1:Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.

PO2:Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3:Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4:Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs) - REGULATION 2017

PEO1: To enable graduates to pursue higher education and research, or have a successful career in industries associated with Computer Science and Engineering, or as entrepreneurs.

PEO2: To ensure that graduates will have the ability and attitude to adapt to emerging technological changes.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs) - REGULATION 2021

PEO1: Apply their technical competence in computer science to solve real world problems, with technical and people leadership.

PEO2: Conduct cutting edge research and develop solutions on problems of social relevance.

PEO3: Work in a business environment, exhibiting team skills, work ethics, adaptability and lifelong learning

PROGRAM SPECIFIC OBJECTIVES (PSOs) - REGULATION 2017

PSO1: To analyze, design and develop computing solutions by applying foundational concepts of Computer Science and Engineering.

PSO2: To apply software engineering principles and practices for developing quality software for scientific and business applications.

PSO3: To adapt to emerging Information and Communication Technologies (ICT) to innovate ideas and solutions to existing/novel problems.

PROGRAM SPECIFIC OBJECTIVES (PSOs) - REGULATION 2021

PSO1: Exhibit design and programming skills to build and automate business solutions using cutting edge technologies.

PSO2: Strong theoretical foundation leading to excellence and excitement towards research, to provide elegant solutions to complex problems

PSO3: Ability to work effectively with various engineering fields as a team to design, build and develop system applications.

STUDENT'S ARTICLES

EDUCATION

"Investment in knowledge pays the best interest." – Benjamin Franklin.

Education plays an instrumental role in student's personal and career growth, setting their moral compass, developing the economy and creating a robust society. Every student must aspire to access quality education as it will lead to upward mobility

R.DEEPIKA
III-CSE

SEMINAR ON

WEB DEVELOPEMENT

A Seminar by our Alumini
Mr.A.Guhan Shanmugam

VOYAGER

Voyager 2 was launched first, on August 20, 1977, Voyager 1 followed some two weeks later, on September 5. The twin-spacecraft mission took advantage of a rare orbital positioning of Jupiter, Saturn, Uranus, and Neptune that permitted a multiplanet tour with relatively low fuel requirements and flight time. The alignment allowed each spacecraft, following a particular trajectory, to use its fall into a planet's gravitational field to increase its velocity and alter its direction enough to fling it to its next destination.

Using this gravity-assist, or slingshot, technique, Voyager 1 swung by Jupiter on March 5, 1979, and then headed for Saturn, which it reached on November 12, 1980. It then adopted a trajectory to take it out of the solar system. Voyager 2 traveled more slowly and on a longer trajectory than its partner. It sped by Jupiter on July 9, 1979, and passed Saturn on August 25, 1981. It then flew past Uranus on January 24, 1986, and Neptune on August 25, 1989, before being hurled toward interstellar space. Voyager 2 is the only spacecraft to have visited the latter two planets.

D.DHINAGAR
III-CSE

VLSI TECHNOLOGY

VLSI Technology, Inc., was an American company that designed and manufactured custom and semi-custom Integrated Circuits (ICs). The company was based in Silicon Valley, with headquarters at 1109 McKay Drive in San Jose. Along with LSI Logic, VLSI Technology defined the leading edge of the Application-Specific Integrated circuit (ASIC) business, which accelerated the push of powerful embedded systems into affordable products.

Initially the company often referred to itself as "VTI" (for VLSI Technology Inc.), and adopted a distinctive "VTI" logo. But it was forced to drop that designation in the mid-1980s because of a trademark conflict. VLSI was acquired in June 1999, for about $1 billion, by Philips Electronics and is today a part of the Philips spin-off NXP Semiconductors**.**

K.SOWMIYA
III-CSE

INNOVATION DAY

PROGRAMMING

Programming refers to a technological process for telling a computer which tasks to perform in order to solve problems. You can think of programming as a collaboration between humans and computers, in which humans create instructions for a computer to follow (code) in a language computers can understand.

Programming enables so many things in our lives. Here are some examples:

- When you browse a website to find information, contact a service provider, or make a purchase, programming allows you to interact with the site's on-page elements, such as sign-up or purchase buttons, contact forms, and drop-down menus.
- The programming behind a mobile app can make it possible for you to order food, track your fitness, access media, and more with ease.
- Programming helps businesses operate more efficiently through different software for file storage and automation and video conferencing tools to connect people globally, amongst other things.
- Space exploration is made possible through programming.

P. PRINCE MONIKA
III-CSE

ANNUAL DAY CELEBRATION

GRID COMPUTING

Grid computing is a computing infrastructure that combines computer resources spread over different geographical locations to achieve a common goal. All unused resources on multiple computers are pooled together and made available for a single task. Organizations use grid computing to perform large tasks or solve complex problems that are difficult to do on a single computer.

For example, meteorologists use grid computing for weather modeling. Weather modeling is a computation-intensive problem that requires complex data management and analysis. Processing massive amounts of weather data on a single computer is slow and time consuming. That’s why meteorologists run the analysis over geographically dispersed grid computing infrastructure and combine the results

Financial services

Financial institutions use grid computing primarily to solve problems involving risk management. By harnessing the combined computing powers in the grid, they can shorten the duration of forecasting portfolio changes in volatile markets.

Gaming

The gaming industry uses grid computing to provide additional computational resources for game developers. The grid computing system splits large tasks, such as creating in-game designs, and allocates them to multiple machines. This results in a faster turnaround for the game developers.

Entertainment

Some movies have complex special effects that require a powerful computer to create. The special effects designers use grid computing to speed up the production timeline. They have grid-supported software that shares computational resources to render the special-effect graphics.

Engineering

Engineers use grid computing to perform simulations, create models, and analyze designs. They run specialized applications concurrently on multiple machines to process massive amounts of data. For example, engineers use grid computing to reduce the duration of a Monte Carlo simulation, a software process that uses past data to make future predictions.

K.SURYA
III-CSE

YOUTH JUSTICE

Why is youth justice a human rights issue?

The trial and sentencing of children and young people for criminal offences engages a number of fundamental rights under the European Convention on Human Rights (ECHR). The rights most obviously engaged are Article 2 (right to life), Article 3 (prohibition of torture and inhuman or degrading treatment or punishment), Article 5 (liberty), Article 6 (fair trial) and Article 8 (private and family life).

Which human rights instruments are relevant?

As well as the Human Rights Act 1998 and the ECHR, there are several international instruments that deal specifically with the rights of children subject to criminal proceedings.

The UN Convention on the Rights of the Child (CRC), to which the UK is party, states at Article 3(1) that:

In all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration.

Article 40(1) of the CRC provides that:

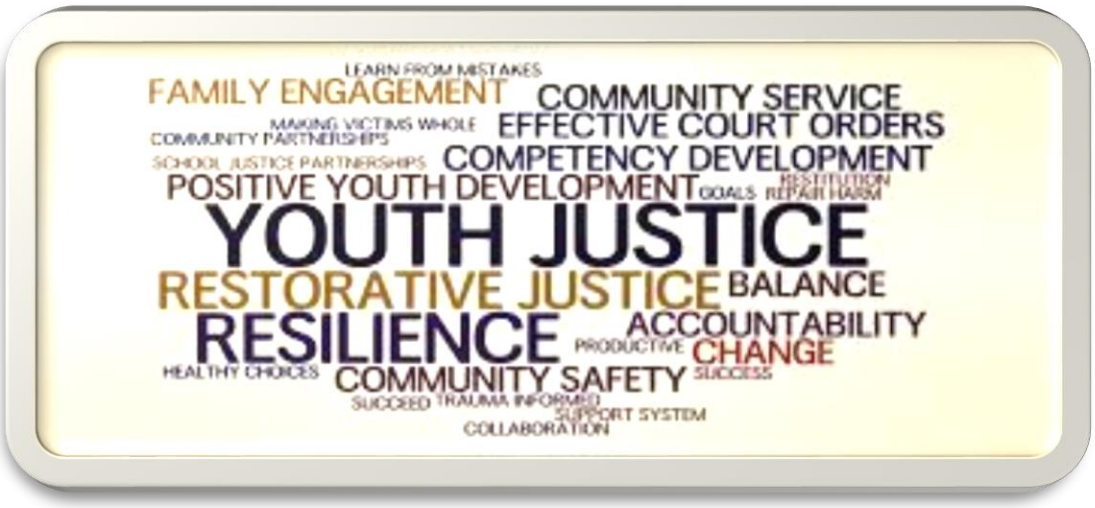
States Parties recognize the right of every child alleged as, accused of, or recognized as having infringed the penal law to be treated in a manner consistent with the promotion of the child's sense of dignity and worth, which reinforces the child's respect for the human rights and fundamental freedoms of others and which takes into account the child's age and the desirability of promoting the child's reintegration and the child's assuming a constructive role in society.

Article 37, inter alia, prohibits torture or other cruel, inhuman or degrading treatment or punishment, the use of capital punishment or life imprisonment without possibility of release for offences committed by persons below eighteen years of age, and provides that '[t]he arrest, detention or imprisonment of a child shall be in conformity with the law and shall be used only as a measure of last resort and for the shortest appropriate period of time'.

The implementation of the CRC is monitored by the Committee on the Rights of the Child; its most recent set of 'Concluding Observations' on the UK, in 2002, voiced concerns regarding the juvenile justice system.

Other relevant international instruments include:

- The UN Standard Minimum Rules for the Administration of Juvenile Justice (The Beijing Rules),
- The UN Rules for the Protection of Juveniles Deprived of their Liberty,
- The UN Guidelines for the Prevention of Juvenile Delinquency (The Riyadh Guidelines).



P.VIVEK
III-CSE

CYBER SECURITY

The global cyber threat continues to evolve at a rapid pace, with a rising number of data breaches each year. A report by Risk Based Security revealed that a shocking 7.9 billion records have been exposed by data breaches in the first nine months of 2019 alone. This figure is more than double (112%) the number of records exposed in the same period in 2018.

Medical services, retailers and public entities experienced the most breaches, with malicious criminals responsible for most incidents. Some of these sectors are more appealing to cybercriminals because they collect financial and medical data, but all businesses that use networks can be targeted for customer data, corporate espionage, or customer attacks.

With the scale of the cyber threat set to continue to rise, global spending on cybersecurity solutions is naturally increasing. Gartner predicts cybersecurity spending will reach $188.3 billion in 2023 and surpass $260 billion globally by 2026. Governments across the globe have responded to the rising cyber threat with guidance to help organizations implement effective cyber-security practices.

In the U.S., the National Institute of Standards and Technology (NIST) has created a cyber-security framework. To combat the proliferation of malicious code and aid in early detection, the framework recommends continuous, real-time monitoring of all electronic resources.

The importance of system monitoring is echoed in the “10 steps to cyber security”, guidance provided by the U.K. government’s National Cyber Security Centre. In Australia, The Australian Cyber Security Centre(ACSC) regularly publishes guidance on how organizations can counter the latest cyber-security threats.

Cybersecurity involves protecting systems, networks, and data from digital attacks, unauthorized access, or damage. It encompasses measures such as encryption, firewalls, and multi-factor authentication to safeguard sensitive information, ensure privacy, and maintain the integrity and availability of systems. Cybersecurity is crucial in defending against threats like malware, phishing, and hacking attempts in an increasingly connected world.

Virus: A self-replicating program that attaches itself to clean file and spreads throughout a computer system, infecting files with malicious code.

Trojans: A type of malware that is disguised as legitimate software. Cybercriminals trick users into uploading Trojans onto the computer where they cause damage or collect data .

Spyware: A program that secretly records what a user does, so that cybercriminals can make use of this information. For example, spyware could capture credit card details.

Ransomware: Malware which locks down a user's files and data, with the threat of erasing it unless a ransom is paid.

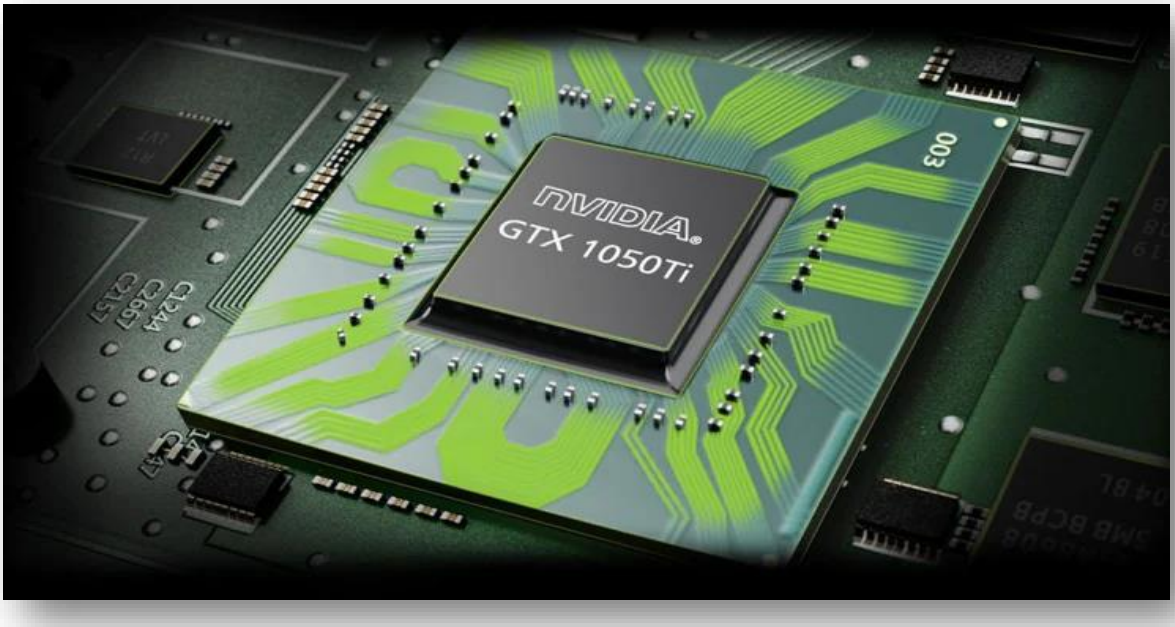
Adware: Advertising software which can be used to spread malware.

Botnets: Networks of malware infected computers which cybercriminals use to perform tasks online without the user's permission.

S.SEBE
III-CSE

PLACEMENT DAY

GRAPHIC CARD



A Graphics Card (also called a video card, display card, graphics accelerator, graphics adapter, VGA card/VGA, video adapter, display adapter, or colloquially GPU) is a computer expansion card that generates a feed of graphics output to a display device such as a monitor.

Graphics cards are sometimes called *discrete* or *dedicated* graphics cards to emphasize their distinction to an integrated graphics processor on the motherboard or the Central Processing Unit (CPU). A Graphics Processing unit (GPU) that performs the necessary computations is the main component in a graphics card, but the acronym "GPU" is sometimes also used to erroneously refer to the graphics card as a whole.

Most graphics cards are not limited to simple display output. The graphics processing unit can be used for additional processing, which reduces the load from the CPU. Additionally, computing platforms such as OpenCL and CUDA allow using graphics cards for general-purpose computing. Applications of general-purpose computing on graphics cards include AI training, cryptocurrency mining, and molecular simulation. Usually, a *graphics card* comes in the form of a printed circuit board (expansion board) which is to be inserted into an expansion slot. Others may have dedicated enclosures, and they are connected to the computer via a docking station or a cable. These are known as external GPUs (eGPUs). Graphics cards are often preferred over integrated graphics for increased performance.

A.POORANI
III-CSE

ANSWERS

PUZZLE KEY

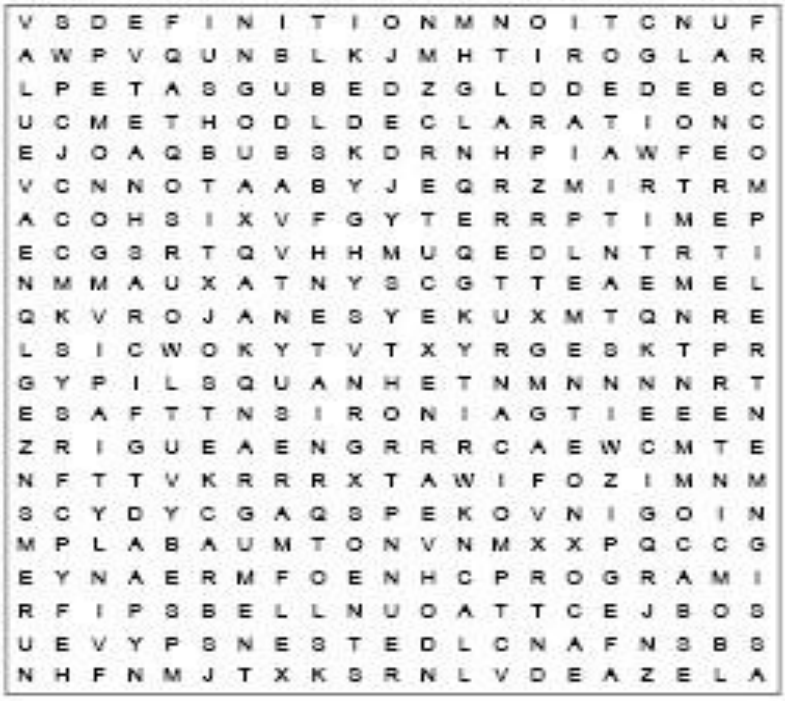
"The wait is over! The answers from last year are finally here, unlocking the mysteries we left behind."

WORD SEARCH

Computer Programming

Word Search

DIRECTIONS: Find and circle the vocabulary words in the grid. Look for them in all directions including backwards and diagonally.



ALGORITHM	CRASH	INTEGER	READ
ARGUMENT	DEBUG	INTERPRETER	RETURN
ARRAY	DECLARATION	INVOKE	RUN
ASSIGNMENT	DEFINITION	ITERATE	STRING
BRACKETS	EXECUTE	LOOP	SYNTAX
CALL	FLOAT	METHOD	TYPE
CLASS	FUNCTION	NESTED	VALUE
COMMENT	IMPLEMENT	OBJECT	VARIABLE
COMPILER	INSTANCE	PARAMETER	WRITE
CONSTANT	INSTANTIATE	PROGRAM	

"Every crossword solved is a victory earned. The mind sharpens, and the hero within emerges!"

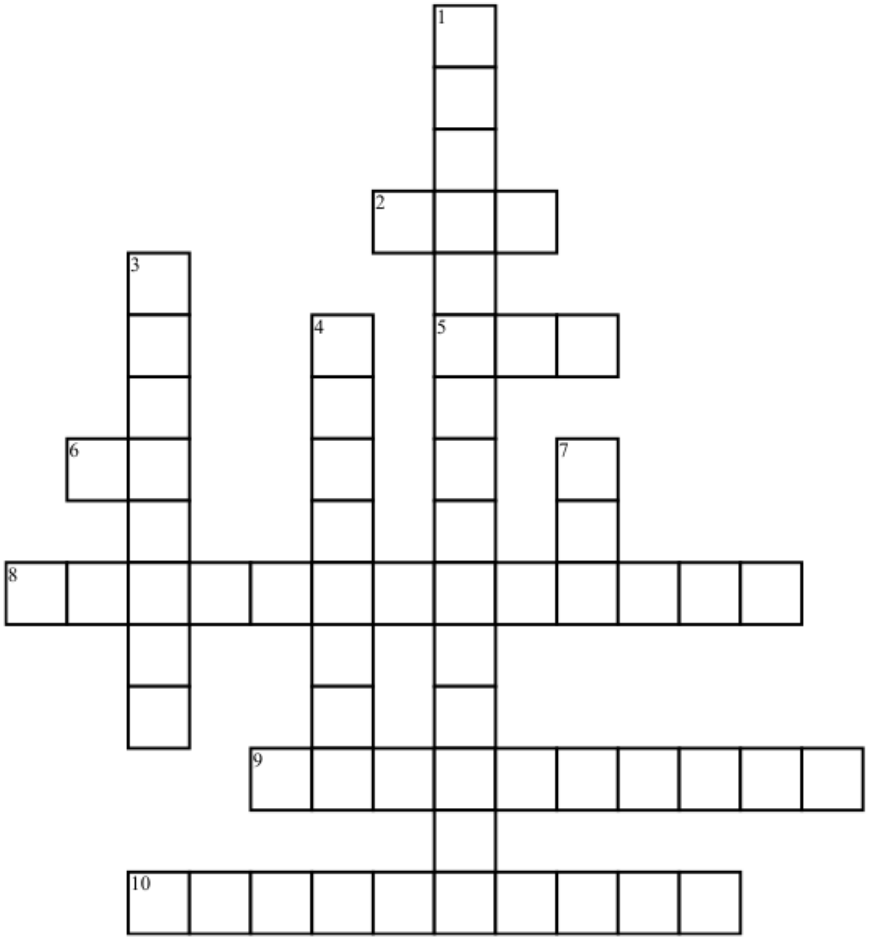
VISION TECHNOLOGY

Vision technology, also known as computer vision, refers to the field of study where machines are programmed to interpret and make decisions based on visual data. It involves the development of algorithms that enable computers to process, analyze, and understand images and videos. This technology finds wide application in areas such as facial recognition, object detection, medical imaging, and autonomous vehicles. By mimicking human sight, computer vision helps machines to interpret their surroundings in real-time, making them more intelligent and capable of interacting with their environment. One of the key components of vision technology is machine learning, where models are trained using vast datasets to recognize patterns and make predictions. Techniques like deep learning, which involves neural networks, have advanced the ability of machines to accurately process visual data. These algorithms can be applied to tasks like recognizing handwritten text, identifying objects in photos, or diagnosing medical conditions from scans. As the technology progresses, vision systems are becoming more accurate and efficient, even surpassing human capabilities in specific tasks. Vision technology is revolutionizing industries by enabling automation, improving safety, and enhancing the accuracy of processes. In manufacturing, it is used for quality control and detecting defects in products, while in retail, it powers customer behavior analysis through surveillance systems. Autonomous vehicles rely on computer vision to navigate and avoid obstacles.

S.D.SANJAY
III-CSE

CROSSWORD PUZZLE

COMPUTER MEMORY



Across

2. I hold the start up instructions that prepare a computer to use

5. I am also an optical storage device store from 4.1 GB to 17 GB of data

6. I am an optical storage device store up to 700 MB of data

8. I am the built-in memory

9. I am a storage medium used for mobiles, digital cameras and music players

10. I am a new optical disk store 50 GB of data

Down

1. I store the information for a longer period.

3. I am the main storage medium for computers

4. I am the most popular data backup device

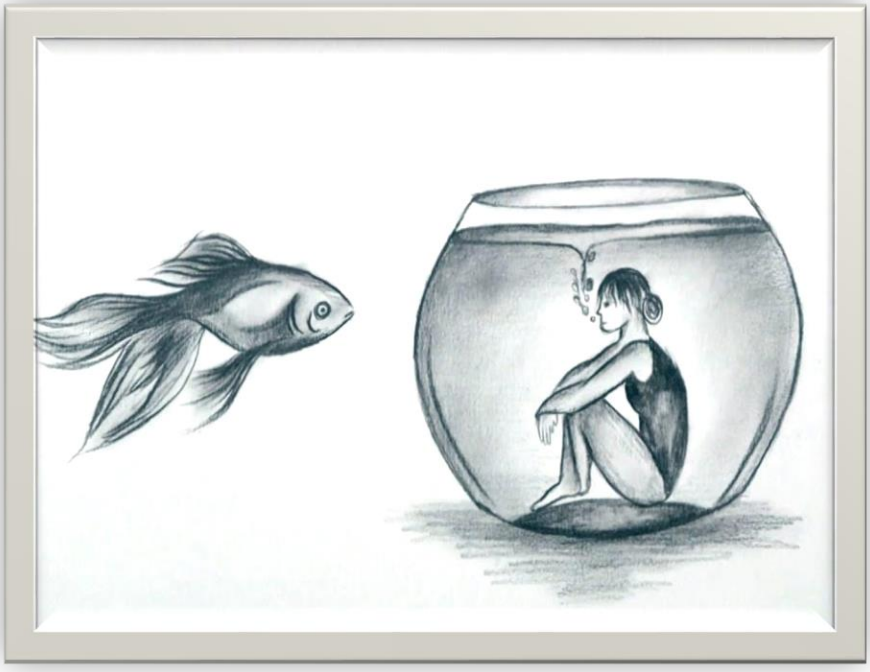
7. I store the information temporarily.

"Each clue conquered is a step closer to triumph. Embrace the challenge and become the crossword champion!"

PENCIL ART

Art By…
L.GOKUL

Art By..
R.KAVIYA



"With each stroke of the pencil, a blank page becomes a canvas for endless imagination."

INNOVATE LEAD SUCCEED

WINNERS ARE NOT BORN THEY ARE MADE...

CHAMPIONS KEEP PLAYING UNTIL THEY GET IT RIGHT...

CSE VOICES

"OUR GREATEST GLORY IS NOT IN NEVER FALLING,BUT IN RAISING EVERY TIME WE FALL"

CHIEF EDITOR: Mr.R.TAMILARASU, AP/CSE

STUDENT COORDINATOR - EDITORIAL COMMITTEE

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